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ABSTRACT

A 2-year project at the University of Aberdeen focused on the production of learning materials and the planning of audiovisual based instruction. Background information on the project examines its origins, the nature of course teams, and the evaluation of the five text-tape programs produced. The report specifies three project aims: (1) to produce a series of learning packages of videotape and accompanying text material; (2) to encourage widespread use of such packages by a process called action research or "team planning"; and (3) to publicize the various development stages to encourage others to try these techniques. Sample materials appended include two television scripts, a botany self assessment exercise, a scenario for law programs, an evaluation (botany), and notes for viewers (law). (MER)

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RESOURCE BASED LEARNING

An Experience in Planning and Production

A Report to the Nuffield Foundation
on Completion of Grant EDU/GRA/159.

Ray McAleese
and
John Scobbie

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We would like to thank all our colleagues who assisted in this work. Innovation does not take place in a vacuum; people innovate, not systems. We therefore acknowledge the work of many un-named friends who helped us in this work.

Ray McAleese
John Scobbie

July 1980

Biographical Note

Dr Ray McAleese, is Director of the University Teaching Centre, University of Aberdeen. His interests are in innovation and policy decision in higher education. He is editor of the journal Programmed Learning and Educational Technology and is joint editor and author (with D. Unwin) of the Encyclopaedia of Educational Media Communications and Technology, Macmillan.

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TABLE OF CONTENTS

	Summary	1
1.	Introduction	3
2.	Background to the Project	4
3.	Work Undertaken	7
4.	Course Teams	11
5.	Evaluation of the Packages	28
6.	Costs of Producing Learning Packages	30
7.	Conclusion	34
	References	35
8.	Appendices	37
.1	Botany : Television Script (example)	38
.1	Botany Self Assessment Exercise	41
.2	Law : Television Script (example)	45
.1	Scenario for Law Programmes (example)	57
.3	Sample Evaluation (Botany)	65
.4	Notes for Viewers (Law)	73
.5	Application to Nuffield	87

SUMMARY

The project had three aims:-

1. To produce a series of learing packages consisting of videotape and accompanying text material. These packages would consist of:

   VIDEOTAPE - containing visually relevant material

Tape-Text

   TEXT - instructions
   textual information
   self-assessment tests

   That is 'Resource-Based Learning Packages'

2. To encourage the widespread use of such packages by a process called action research; that is, having teachers themselves produce the packages, and be involved in monitoring and evaluating their usefulness.

Action Research

   That is 'Team Planning'

3. To publicise the exercise widely at the various stages; production; evaluation; monitoring, and create a general interest in the project, thus encouraging others to become interested and try the techniques. (learning packages and team planning).

Disseminate

Two packages were made for first year Botany students, and three for students on the LL.B. or Diploma in Legal Practice. The concept of team planning

was found to be useful although the definition of roles was a problem. The programmes have been used by students on a number of occasions with favourable results. Subsequent packages would be changed to account for detailed criticism, e.g. density of information. A much wider interest has been shown in the packages (in particular Law) than was expected; with other universities in this country and abroad being involved.

Interest in Project

The costs of the exercise were within the limits of the original costing exercise, although such television-text packages are both labour and capital intensive. To some extent all three aims were achieved, some more effectively than others.

Labour Intensive
Capital Intensive

Aim 1 was met in the production of the materials.

Aim 2 is <u>least</u> well achieved. To date no definite plans have been made to produce more packages, although the planning process is being used.

Aim 3 has been met with publications, discussions and evaluations; within and outside the university. It is estimated that some 35 people were involved in the project during its two years within Aberdeen.

1. Introduction

Final Report

This is the final report of a production which began in the Univeristy of Aberdeen some two years ago, which attempted to produce learning materials and throw light on the planning of audiovisual based instruction. The work described here was almost entirely funded by a grant from the Nuffield Foundation under its Small Grant Scheme. This report summarises the background to the project; examines the nature of course teams and undertakes an evaluation of text-tape programmes produced. Programmes were produced for the Department of Botany and the Faculty of Law in the University of Aberdeen. Without the help of many colleagues this project would not have been possible. Without the intervention of the Small Grants Scheme, the project would have lacked co-ordination from a full-time worker and the impetus of research grant funding. One comment made in the evaluation of the work highlights this:

Nuffield Support

> "(The award) clarified our thinking at a time when we were moving in that direction in a muddled way .... it was a discipline ... because there was a time scale"

This report is, therefore, an attempt to draw out for others the lessons of one small piece of academic engineering. Its lessons are not in any sense novel, yet they do highlight some of the general issues in an educational technology based system of teaching.

2. Background to the Project

This initial substantive chapter is important as it indicates some of the features that led us to undertake the work.

It is too long ago now to say with any certainty - when the project began, or indeed, how it began. In fact, the recollections of the principal participants differ considerably. A composite view is that discussions within the university regarding the role of television were leading a number of people to suggest a resource based learning approach. It was felt that television, as the principle audiovisual medium, could be more widely used if a shift were made from instructional programmes to using television as a resource in a mixed teaching package. It was also felt that an attempt should be made to see if students and teachers could benefit from an enquiry based style of learning (that is, resource based learning). These ideas were debated in a faculty television users committee and a faculty resources group. There was some doubt about the underlying assumptions, but the Director of the Television Service and Dr McAleese felt that the resource based idea merrited close scrutiny.

Shift to Resource Based Learning

At the same time, Dr McAleese was interested in the concept of team planning; in particular, the roles played by individuals and the way such roles changed during team work. It was from work in staff development that Dr McAleese put forward the idea of 'quartets' in team planning. That is subject specialists, media specialists,

Team Planning

Planning Quartets

students and eductional specialists. (see McAleese,1978; for an analysis of "triads" in innovation and course planning).

Small Grants Scheme

By chance, one of the regular advertisements from the Nuffield Foundation Small Grants Scheme appeared in the national press. At least two people involved in the initial discussions thought that such a scheme might support a short project in this area. The advertisement was timely as there had been discussions previously about securing external funds to support the production of individualised materials on Law teaching. One team member has described the Nuffield Scheme as catalytical and suggested that as well as being the 'animateur' of the work. The idea that grew out of discussions was to identify one or two departments that would provide topics and teachers interested in a trial run of resource based teaching. The Law Faculty had been making an increasing use of television and had just completed a series of programmes on Industrial Tribunals. The Botany department had been discussing the needs of first year students and were interested in exploring the visual impact of television. In addition, a senior member of the Botany department had become involved in a policy committee relating to television and,therefore, had been taking an active interest in new television projects and likely developments. This chance occurrence (i.e. the selection of an academic by his colleagues to serve a policy committee) while not directly related to either the selection of the department or the individual, was the serindepitious type of event that characterised the initial stage of the project.

Trial Run

Chance?

Importance of People

We suggest that while it is both desirable to establish objective and value free reasons for actions, chance is a strong factor when viewed in retrospect. It is probably true to say that individuals were chosen first, not subject areas. This was an important decision as it turned out. While the system approach might dictate that a problem from an individual would be the starting point, it turned out that personal factors were important in the later stages of the project. Indeed, a rubric that suggests itself is that a project must be designed so as to match both needs to resources and individuals to individuals.

Overview

The Botany department chose two senior demonstrators to be liason personnel with the project. The work in the Law faculty was mostly handled by the subject specialist. And so the project was set up. The following chapters of this report draw out some important points under a number of separate headings; course teams, inter-personal relationships, costs, etc. First, however, we summarise the work undertaken.

3. Work Undertaken

This chapter summarises the audiovisual work of the project.

A Learning Package?

We set out to produce learning packages. To date we have produced videotapes, questionnaires and notes for students. Whether this multi-media assortment constitutes a series of learning packages is a question of definition. The emphasis has been on the audiovisual software, with less time given to the preparation of accompanying text. In a number of ways we have achieved different results from these set out in the application. These differences show how our thinking changed with practice, and how we clarified the vague initial aims.

BOTANY

Factual Packages

The first two programmes in a projected series of six or seven have been produced for use in first year Botany teaching. Both learning packages are primarily factual and attempt to teach specific topics. They incorporate numerous visuals in the form of film, slides, drawings, animated diagrams and specimens. (see Appendix 8.1 for the script of programme 1).

Logical Build-up

Programme One - "The Morphology of Flowers" relates the specimen we see in the laboratory to its natural habitat. In this programme the students are given an understanding of the function of a flower, and then, by breaking it into its components the programme analyses the structure of the flower, clearly labelling the parts. The example taken is Greater Bindweed (Calystegia secpium) and moving in logically from the outside

Importance of Labelling

towards the centre the students see in detail, the Sepals, the Whorls, the Pedicel, Calyx, etc. Considerable care was taken to identify and label all the appropriate parts of this and other flowers used for comparisons.

Annimation

The second half of the programme explains the reasons for adopting a shorthand method of defining flower structure - Floral Formulae. Again, using the Greater Bindweed the programme builds an animated diagram of the Floral Formulae while analysing the flower. (The accompanying text can be found in Appendix 8.1.1)

Feedback Questionnaire

Programme Two - "Fruits and Seeds" is produced in a similar style, and opens by investigating the reasons why fruits and seeds are produced. Pollination is explained and then the more subtle differences between fruits and seeds, ranging in size from the dandelion to the double coconut. A short feed back questionnaire incorporating diagrams accompanied each programme.

LAW

Three programmes entitled "Solicitor/ Client Relations" were produced. They incorporate a series of consultations between a solicitor and clients. The programmes are built on the skeleton of a fictitious case, and it is intended that the student should be afforded an opportunity to compare and contrast different styles of interviewing clients. Both the personalities, and approaches, of the solicitors and clients alike are extremely varied, although in each interview situation they have been furnished with exactly the same information and rehearsed to the same degree. The recorded interviews

Left to Student Perceptions

display a wide spectrum of social behaviour and mannerism between individuals. No attempt was made to suggest what are regarded as "good" or "bad" points. This is left entirely to the student and the tutors for discussion.

Accompanying Text

In addition to the video programmes, Notes for viewers were made available. These notes outline the aims and objectives of the programmes and give details on how they may be effectively used. (see Appendix 8.4) The accompanying questionnaire was intended to elicit a positive response and stimulate thought and discussion;to focus attention. Six interviews were recorded. Appendix 8.2.1 gives an example of the type of scenario used to provide a background for the 'actors'.

The work undertaken kept a production assistant fully occupied for six months, and took the time and effort of three academics over a longer period. While there is still a lot to be done, the work certainly expanded to fill the available time.

EVALUATION

Data Collection

During the work the principal investigator, Dr McAleese, kept a diary and made notes on various aspects of the work. The media specialist also made a record of the work and filed documents and papers. On completion of the work,the principal investigator interviewed all the central members of the project. Out of a large number, he chose those who were involved over the full length of the work. Each participant made an estimate of various costs and time

Critical Self-Evaluation

involved in the work. These data serve as a basis for this report and the evaluation of the project as a whole; in particular the concept of course team planning. The evaluation itself (that is, this report) is a useful exercise in critical self-evaluation and in providing a framework for others to discuss the issues involved.

The next chapter looks in detail at the concept of Team Planning.

4. Course Teams*

This chapter in the report will consider the course planning element. It will in turn indicate the origins of team planning, examine inter-personal relationships, and suggest a model that might serve as a background for further work and evaluation.

Rational Planning

One of the central tenents in systems technology is the rational planning of instruction. Often in this model it is assumed that teachers are completely responsible for the planning of new instruction; calling on outside help and resources only when required. The subject specialist is therefore seen as being the centre of a team of individuals; such as media personnel (e.g. graphic designers, TV production assistants), 'educational assistants' (Engel,1974) and sometimes students. Recent thinking and the example of the Open University (in the UK) has prompted many to consider that instruction can only be planned by a definite team of colleagues working as equals. (For a description of the Open University system see: Lewis,1971 a,b,c,; Stanton, 1978 inter alia). The work in this report arose out of an attempt to plan and produce a number of learning packages using a team approach in the Law Faculty and the Botany Department. In his application to the Nuffield Foundation, Dr McAleese stated this particular aims thus:

Team of Equals

Project Aims

> 'The project aims are to produce and evaluate two parallel series of learning packages consisting of videocassettes, textual material

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* Footnote:
An early version of this chapter was presented to ETIC 79. (see Scobbie and McAleese, 1979).

> and self-assessment tests. The packages will be produced as a co-ordinated, four cornered project team exercise (subject specialist, educational specialist, media specialist and student representative). The effectiveness of the project team will also be evaluated in a participation, observation study'.

The application spelled out the intention behind the course team and an aim was set for the team.

> '- - - as well as producing and evaluating the learning packages, we intend to evaluate the role of the project team in producing such material. The team will be co-ordinated by a graduate Production Assistant from the Television Service who will be seconded to the project for six months. Each team will consist of four members who will be jointly responsible for seeing the project through. In each case a student will be invited to join the team as a full working member'.

(See Appendix 8.5 for the substance of the application).

Critical Evaluation

This section of the report examines critically the assumptions underlying team planning and gives evidence on such planning from the project.

Team Teaching

The idea of course teams comes from the work of curriculum development teams where the project is brought into being, not through the work of one individual but through team effort. (see, for example, Humble and Simons, 1978) Team teaching in its planning phase (see, for example, Shaplin and Olds, 1964) follows a similar

tactic. However, some authors writing of course design seem to take little account of the processes of course planning (e.g. Dallas et al, 1976).

Division of Labour

One of the reasons often mooted for team planning is that there is a division of labour and a resultant use of specialists. Division of labour means that teams can be composed of media, educational and subject specialists. Sometimes student members are co-opted or asked to join such teams. Often, however, students are reluctant conscripts or 'after thoughts'. The origins of such composite team work might be found in the changing role of the teacher in education:

Teacher's Changing Role

> 'One of the most exciting and important things that has happened to the concept of teaching in many years . . . has been the current departure from the image of the teacher as an isolated adult working in lonely professional solitude...' (Denemark, 1969).

This breaking down of the isolation of the teacher has led to the introduction of specialist helpers at different levels. Engel (1974) writing about medical education advocated the use of 'educational assistants' to augment the traditional medical illustrator and the medical subject specialist. Such specialists were seen by Engel as providing the 'head' to the planning body. Recently polytechnics, colleges of Further Education and central institutions, in Scotland, are using course teams to plan new courses. Or at least on paper they have structures and the organisation for such teams. The difference between public acclaim and private reality, are taken up below.

Educational Specialists

Polytechnic Use

These changes have been caused largely by the need to prepare courses in great detail for bodies such as the Council for National Academic Awards and to a lesser extent as a result of student pressure. In one Scottish central institution, the Director has 'requested' all course team chairmen to co-opt a member of the Educational Technology Service Unit to serve on the course team. In one large polytechnic in England, all CNAA submissions have to go through an educational resources unit for comment before they leave the institution. In general, the internal validation of university courses has meant (despite the use of external examiners) less public scrutiny and less interest in the involvement of educationalist or systems technologists than in polytechnics.

Internal Validation

In the Open University, course teams are set up to plan, write and edit course units (see Lewis,1971 a,b,c, for a description of course teams; but see more recently Stanton,1978). These Open University teams are composed of subject specialists, representatives from the broadcasters, a member of the Open University's Institute for Educational Technology and from time to time, legal experts, designers, printers and others. These teams seem cumbersome and it is sometimes alleged that some of the members take little or no part in the work. While the Open University is a good example of the use of systems technologists in the planning of teaching, it was interesting to note the critical valedectory remarks of the institution's first Vice Chancellor about the need for such 'help'. Indeed, the whole concept

O U Teams

Doubt About Teams

of the educational technologist was very critically examined. It may be that such 'acclaim' is the result of good work. It has been claimed that the success of innovative work in higher eduction can be measured by the degree to which it 'irritates' the host (see McAleese,1979 for details of this line of argument).

System Irritation

The problems do not only exist in well known examples, as this report will indicate, but also in less ambitious situations. Indeed, some have argued that a small team in teaching is better than a large one. The intimacy of the small team may be beneficial; curriculum development by committee, while attractive from a research development and diffusion (RD & D) standpoint, is not well suited to university course planning.

Intimacy

There are a number of reasons for this. First, despite the 'exciting and important' changes that have taken place in teaching, much of the planning work for teaching is still undertaken independently by the lecturer 'working in lonely professional solitude' (Denemark,1969). Not only does the lecturer perform in private, he plans his courses in privacy as well. Second, curriculum development by committee is difficult due to problems of getting a committee together when people have full timetables.

Working on Own

Logistics

During the project evaluation a number of people commented in detail on this problem. One participant commented:

Timetable Pressures

> "There was always the problem that people involved in this type of project are giving of their time and there's got to be really total commitment ..."

One wonders whether 'giving' is the right sentiment. Is it that this work is seen to be in addition to "normal" work? One participant said with some feeling

> "If one could . . . devote a month to doing nothing else but this, then there would be no problems at all"

Labour Intensive

Time was an important factor and it is likely that any developmental work will be labour intensive.

As there is no norm that people work in committees; the planning of individual work programmes tends not to take into account joint planning.

This project high-lights this logistic problem. One team member after the project said:

> ".... and you never have a total commitment because people are always dashing off to one place and the next: getting people together was one major problem"

Interpersonal Conflicts

Third, it may be that highly successful 'elitist-researcher' or 'elitist-teacher lecturer' (Halsey and Trow,1972) are not good at co-operative activities. Certainly, comments made by individuals who have had to work in highly structured teams indicate a wide range of inter-personal conflicts at a professional as well as a social level. (see, Forman and Richardson, 1978). This point is developed as it is an important aspect of the project.

Inter-Personal Relationships

As suggested in an earlier section,

inter-personal relationships are brought into sharp focus when one works in a course team. Clearly, there is no expectation that professionals (academics, media specialists etc.) need always work in total harmony. Indeed, it is likely that subject academics are as likely to express differences of opinion as might their more 'artistic' colleagues in media departments. A number of such references occur in the literature on course planning; for example:

Creative Tension

> 'Certain conflicts and crises occur in most course development project; they are part of the "creative tension" of any collaborative art' (Forman and Richardson,1977)

The questions that we raise relate to normal professional interaction where one does not always agree with ones colleagues. Where disagreement is a product of different value judgments and creative pressures. We are concerned to ask whether there are any lessons to be learned.

Selection

> What selection criteria are necessary for team members? e.g. only volunteers. Are there means of removing inter-personal tensions? e.g. social events.
> To what extent do factors like age, experience, position, sex, contribute to inter-personal friction?

"Open-ness"

We feel that there are lessons to be learned. Indeed, there is one principal lesson. It is best described using the word "openness"; that is, where inter-personnel tensions exist, the resultant

effect is seen in poor cumminication. An open social setting is one where there are no hidden assumptions;

No Hidden Assumptions

where goals are dear; where participants can have "full and frank" discussions with no vested interests to protect. This may seem like a recipe for some form of earthly heaven; yet in real ways academics can learn to be open in this way with each other. A good example arising from this project is with agendas. Many project meetings were unproductive because of the lack of "explicit meeting assumptions" i.e. the agenda. An agenda is not a prescriptive approach, rather a setting down of the business. An open agenda is one where people feel free to raise issues; and where there is a mutual respect and inter-dependence.

Open Agendas

We do not want to over-emphasise such matters. We note it as it is in our judgment that it is an area of academic work that is under-estimated. It is often assumed that because academics and their specialist colleagues have a common institution, they have common work assumptions. Indeed, as we indicate below, this is not the case.

Common Work Assumptions

A Model that Describes Team Planning?

Models can either be general statements that pre-determine the inter-relationship of variables, or descriptions that help explain the inter-relationship of variables. We are using the term in the explicative sense here, not in the deterministic sense.

Initial Model

An initial model for the course team participant's roles may suggest a team

of four individuals or groups of individuals with relatively equal roles. (see Figure 1, on page 20) Taking each individual it is possible to record an expected role definition.

Team Leader?

Subject Specialist: the traditional role for the subject specialist is that of 'team' leader. However, team in this sense is a rather loose term usually suggesting pairs of individuals. Subject specialist + media specialist; subject specialist + students; subject specialist + educational specialist. In this project it was not clear the role the subject specialists were expected to play. Clearly he was the person requiring the teaching material, but different individuals involvement varied. It would seem that there are a number of variables that determine the nature of the role individuals play.

Role Components

1. Status - real (e.g. professor, demonstrator)
   - perceived (e.g. high,low)
2. Experience of team planning
3. Time available
4. Commitment to project (e.g.'roped in'; 'started ball rolling')
5. Ease of social interaction

Media Specialist: the individual who is responsible for the execution of audio-visual material. Different situations call for different personnel; in the current situation the media specialist was a Production Assistant in the Television Service. Although the main focus for the media specialist's work is television, he should be able to work with the range of media available

Ecclectic Work

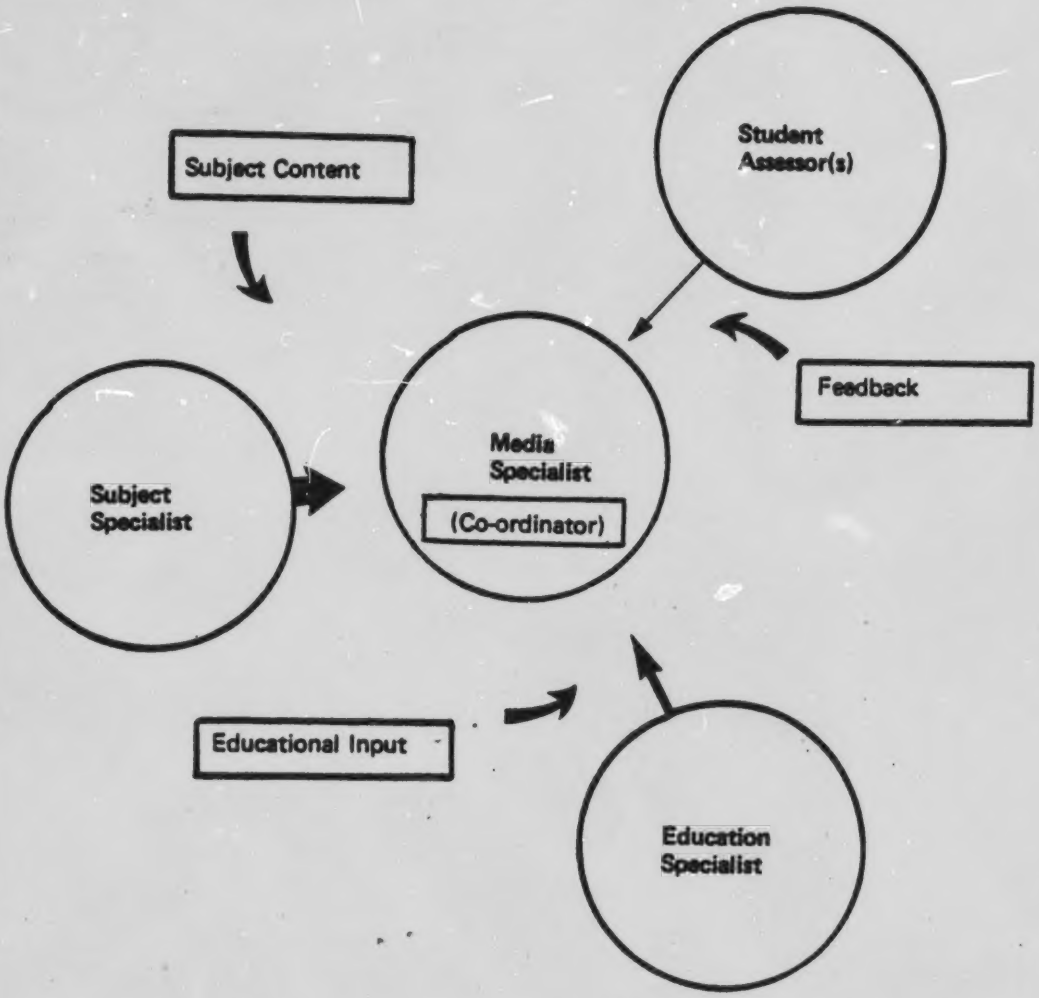

Subject Content
Student Assessor(s)
Feedback
Subject Specialist
Media Specialist
(Co-ordinator)
Educational Input
Education Specialist
Initial Model of Course Team Participants' Roles

Figure 1

(film, still photography, etc.) Usually the media specialist will be the person responsible for getting a script (for media productions) and generally turning the ideas of the subject specialist into a media or finished format. In general the media specialist has a service role to play. In this project, the media specialist was, to a large extent, the team co-ordinator.

Service Role

Not Educational Technologist

Poor Role Definition

Educational Specialist: the individual Engel (1974) called the 'educational assistant'. Someone trained in psychology and/or education. Not usually an educational technologist as this is a role played by the media specialist. Of the three main participants the role of the educational specialist is least well defined. Indeed, part of this project has been to see what role such an individual can play. Specifically the educational specialist was the originator of the project so his initial role was more central than one might normally expect.

Consumer's Conscience

Student Assessor: a student representative; the consumer's representative. In practice several types of students played this role and as a result there is no clear role definition. The expectation was to have one individual working with the team.

Tensions?

Course team planning causes tensions. As we indicated earlier, all the participants have noted the presence of what might be called creative tension (see above). Each participant in the project saw this in different terms, yet in total there is agreement. Some comments highlight this:

"There were temperaments involved ..... on occasions you will find that people who organise ideas into scripts and .... recordings tend to be ... quite quick tempered"

Nervous Energy

"You could say that there is a lot of nervous energy around in the production of television"

"It was always a pleasant atmosphere ... (but) in the beginning there was a certain tension there, and a certain aggression at various stages".

Role Strain

These tensions can be analysed in terms of 'role strain' (e.g. Goode,1960). That is, due to differences between the role that someone plays, or is seen to play, and the role they are expected to play or would like to play, social and management tensions exist. Role strain in this project was due to three contributing factors:-

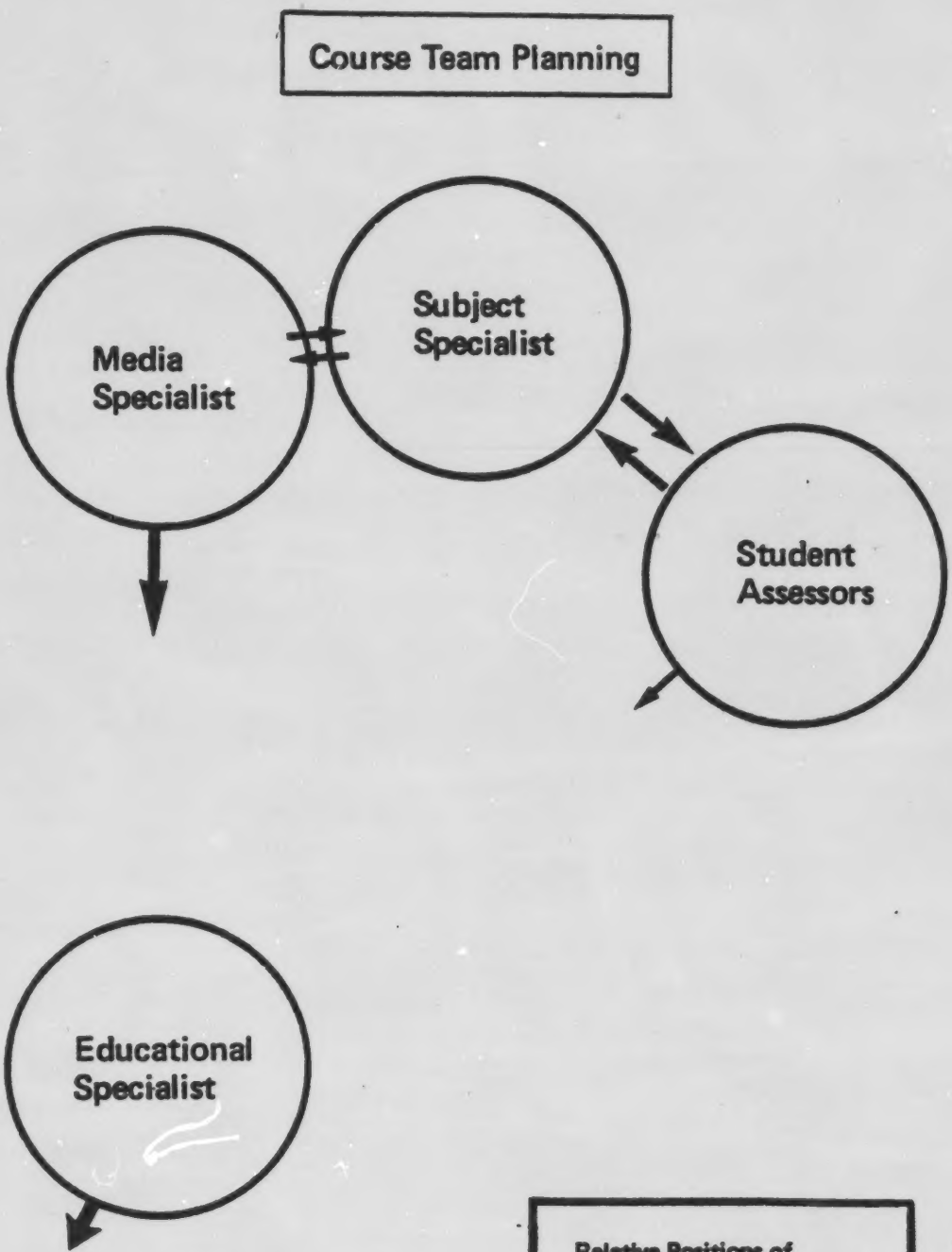
Causes

- poor role definition for participants
- role competition between participants
- role shift in participants

As a result the idealised model suggested in Figure 1 needs modification. Figures 2 and 3 indicate the relative positions of the participants with regard to definition, competition and shift. This point is elaborated on further.

Different Self Perceptions

Poor role definition: due to the novelty of the venture different individuals perceived themselves in different ways.



Relative Positions of Participants with Regard to Working Assumptions and Team Operation

Figure 2

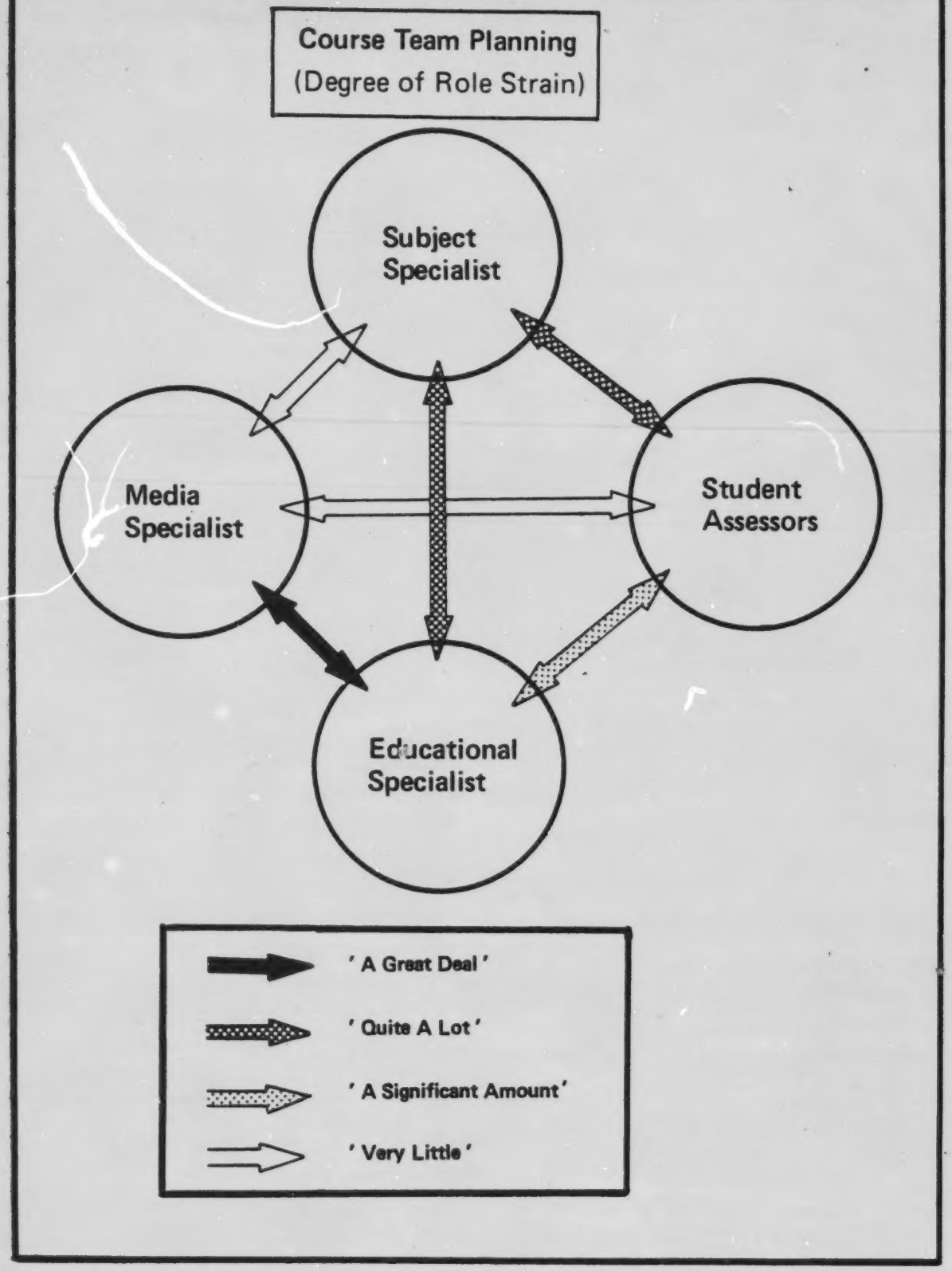

Course Team Planning
(Degree of Role Strain)
Subject Specialist
Media Specialist
Student Assessors
Educational Specialist
' A Great Deal '
' Quite A Lot '
' A Significant Amount'
' Very Little '

Figure 3

While the media specialist was the 'link man', he was perceived differently by the subject specialist and the educational specialist. No clear definition of what was expected was made explicit at the start of the work. The problem with role definition can (in this instance) be seen to vary from individual to individual. (See the Table below).

Role Definition

INDIVIDUAL	PRECISION OF ROLE DEFINITION
Subject Specialist	Generally good
Media Specialist	Not good, but improved over time
Educational Specialist	Poor
Student Assessor	Very poor

Project Direction

Role competition: role competition arises because of poor role definition. Here different individuals expect to, or are perceived as wanting to do different things. In particular there was strong role competition between the educational specialist and the media specialist with regard to overall direction to the project.

General Role Shift

Role shift: is a result of competition. Individuals who experience role strain will shift their role definitions. This can happen in two ways. First, individuals can shift from marginal to central or vice versa. A marginal role for an individual defines him as having little or no control of the direction of the project. Role shift was found in all four groups.

The role analysis suggests that the prime problem in such work is with role definition. This can be attended to in future work, but the further ingredients may well prove more important. This is, attention to social interaction dynamics and the use of management skills in the overall direction of such work.(as noted above) Working structures do not simply emerge on a course team. It is not a serendipitous affair where 'good collegial relations - will magically result in a well designed product' (Forman and Richardson, 1977). Roles must be defined and guide-lines agreed explicitly at the beginning. There has to be an individual with benign control. There has to be a plan that details objectives, team organisation and participant roles. And this document should be agreed to and 'negotiated' at the beginning. Forman and Richardson (1977) make the point well in their analysis when they say:

Importance of Social Dynamics

Initial Agreement

> "After some months of egalitarian rhetoric and unendurable chaos we moved from the Jeffersonian school of course development - consensus and democratic procedures - to the benign despot model of development".

Benign Despot Model?

Social dynamics awareness is an essential ingredient for successful planning. Individual members of teams must be sensitive to the aspirations, needs and feelings of others. When one works in a social setting, opening ones door (or at least leaving it ajar!) then petulence and a 'single-minded approach' are inappropriate. The person with most to lose (and gain) is the subject specialist. He must accept the corporate nature of planning and teaching.

Adaptive Interventionist

Any project must have a coherent view point that comes from the subject specialist. He needs however, to allow other members refine, shape the project and give them job satisfaction. The educational specialist must know when to intervene, when to withdraw. He is or should be what McAleese (1978) calls the 'adaptive interventionist'. The media specialist must be able to facilitate, cajole, counsel the subject specialist and the media specialist. He should be the catalyst in this group. The students need to see a product that is relevant and to feel that their contribution is pares inter pares.

If team members accept each others commitment to their respective disciplines, and agree on processes and product there will be a useful product.

The next chapter goes on to summarise the evaluation of the packages.

5. Evaluation of the Packages

Various groups of individuals have been invited to comment on the packages. Members of the teams, students and external assessors. If we consider the reactions to be illuminative and agree with Stufflebeam (1968) that the purpose of evaluation is to improve not to prove, then our collected comments will improve subsequent packages.

Type of Evaluation

In some ways we fell into the same traps that many other producers have done. In some programmes the information was too compressed, there was an attempt to exploit the medium to its limits as opposed to the needs of the student. One participant felt that there was a considerable gulf between the expectations of the media specialist and the subject specialist. Another said -

> "I think we got a bit carried away by the production enthusiasm .... in the light of the original depth of the programmes .... altogether there was too much production".

Production Enthusiasm

Now this is not necessarily a criticism of the television side of the work. It is a comment that high-lights the different professional views that exist; subject professionalism and media professionalism. One of the misconceptions that non-media people have is that the exploitation of media is not a professional activity. Indeed, it is only to be expected that media specialists will attempt to use all the tools of their trade, just as the academic subject teacher will do the same.

Professional Exploitation

Subsequent packages will have less 'content' and more structured both in the television clips and the accompanying text materials.

The Law programmes will reach a wider audience than the Botany programmes and, therefore, they represent a good return on investment. It is likely that they will be used not only in Aberdeen but on a national Diploma in Legal Practice. The Botany programmes may not reach such a wide audience yet they may prove influential on both first year university teaching and school study of Biology.

If one were left with nothing more than the artefacts of the project, then one would certainly be a little satisfied.

Detailed Evaluation

The most detailed evaluation carried out was with the Botany Programmes. Appendix 8.3 is the detailed report on one of the programmes.

Stimulate Self Awareness

Despite the length of the project, the Law programmes have not been used in a sufficiently wide setting to merit comment. Initial trials with students this year suggest that the programmes stimulate self awareness and pose questions of style and approach to professional work (not provided in any other way). The new Diploma in Legal Practice will be a fuller trial ground for these programmes.

We turn now to the final aspect of this report, costs.

6. Costs

We have attempted in this project to make an estimate of the costs related to production and planning.

Why Costs

We felt that as well as evaluating the process and the product we should indicate the relative nature of direct and indirect costs.

To begin with, one must ask why we should be concerned with costs? We are not attempting to establish the 'cheapness' of audiovisual packages; neither are we attempting to sell the concept as being more cost effective ... we have not attempted to make "hard" evaluations. Rather we are undertaking a further form of system analysis like that of examining the course teams. In systems analysis we are undertaking a process which Fisher (1971) describes as:

Systems Analysis

> ".....inquiry to assist decision makers in choosing preferred future courses of action by (1) systematically examining and re-examining the relevant objectives and alternative policies for achieving them; (2) comparing quantitatively where possible the economic costs effectiveness (benefits) and risk of the alternatives"

Literature is not helpful in saying how to do it or what to do. Doughty et al (1978) reviewing the literature observe:

Evidence of Cost-Effectiveness?

> "While much of this current literature is a valuable contribution to the state of the art, it falls short of providing evidence on the cost effectiveness of instructional technology"

Direct Costs

Almost by definition these costs are approximate and represent the magnitude of the costs as opposed to precise incurred charges. Different elements of the costs vary with regard to their precision. Direct or above the line costs are more precise than below the line costs. In other words, it has been easier to estimate costs where a transfer of funds have taken place from within the institution to an external agent. Costs relating to salaries etc. are below the line costs and must be understood to be less precise for two reasons. First, there is an element of estimation in terms of the number of hours spent on any one task. No one on the project kept precise diaries of time spent although we all recorded in some fashion the time involved in activities.

Below the Line Costs

Table 1 on page 32 summarises the costs of the project work. It should be compared in detail with the application estimates. There is a considerable similarity in the total budget costs. As might be expected, the work was labour intensive. Staff costs representing between 77% and 86% of total costs. This figure highlights the human investment in any educational process. The Botany programmes were more expensive as a unit basis with the higher input of specialist time (More graphics, etc.) The Law programmes were slightly more expensive to 'stage' due to their simulated settings.

Labour Intensive

If one disregards the staff costs and takes the above and below the line costs for the programmes then the average of some £275/programme represents a relatively small investment.

Small Investment?

We would be unwise to conclude that such work is not expensive if staff time is disregarded. This is not an unreasonable assumption as staff costs can be written off as fixed costs.

Programme(s)	Materials		Sub-Total	Staff	Total
	Direct	Indirect			
Botany 1	280 (12.5%)	41 (1.5)	321 (14.0)	1,915 (86.0%)	2,235 (100%)
Botany 2	123 (7.0%)	62 (4.0%)	185 (11.0%)	1,469 (89.0%)	1,654 (100%)
Law 1/2/3	500 (13.0%)	365 (9.6%)	865 (22.0%)	2,953 (77.4%)	3,818 (100%)

in £ (at 1979 costs)

Table 1 : Television Programme Costs

(c f Cost of Packages in Appendix 8.5)

Expensive with Capital Depreciation

The other item which is ommitted relates to the capital investment in equipment and facilities. The question that one has to consider is "What elements should be included?" No straight addition of average costs over several headings will mean very much. Media based learning packages are expensive if one includes capital depreciation. They are less expensive with capital written off. It all depends on costing assumptions. Cost effectiveness is precise with regard to costing if one can agree on the elements of the equation.

7. Conclusion

When a stone is thrown into a pool, it creates ripples; so any innovation will have its effects.

This project has caused a number of ripples in the status quo of planning and production of media packages. It is likely that some will dissipate; others will have far reaching effects. At the end of the day, it is attitudes that may be slowest to change. Evidence presented in a rational imperical way will not necessarily make changes; it may, however, inform opinion and provoke the critical examination of teaching and learning.

Changes in Attitudes most Difficult

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APPENDICES

8.1 BOTANY : Television Script (example)

UNIVERSITY TELEVISION
ABERDEEN

Project No: VTP78C/

Rec.Date : Tuesday,26th Sept. 1978.

Location :

Botany Department Greenhouse
King's College, Aberdeen.

COLOUR

(C) 1978

"The Morphology of Flowering Plants"

Director ..... John Scobbie

Engineering Manager ..... Don Terry

V.T.R. Engineer ..... Jim Woodward-Nutt

Sound Supervisor ..... T.B.A.

Lighting Supervisor ..... Jim Woodward-Nutt

Floor Manager ..... John Macpherson

Vision Mixer ..... Jean Christison

Camera 1 ..... Graham Nicol

Camera 2 ..... Evelyn Patterson

Camera 3 ..... John Macpherson

Caption Operator ..... Richard Hobbs

Caption Operator ..... Deirdre Chalmers

Designer ..... Victor Davidson

Presenter ..... Professor C Gimingham

SCHEDULE

Monday 25th September 1978

Rendezvous T.V. Service Regent Walk

Check Equipment ..... 09.00 - 11.00

Travel to Botany Department ..11.00 - 13.00

Lunch ..... 13.00 - 14.00

Rig and test equipment ..... 14.00 - 17.00

Wrap 17.00

Tuesday 26th September 1978

Technical Line Up ..... 09.00 - 10.30

Coffee ..... 10.30 - 11.00

Rehearse/Record ..... 11.00 - 13.00

Lunch ..... 13.00 - 14.00

Rehearse/Record ..... 14.00 - 17.00

Wrap 17.00

Wednesday 27th September 1978

De-Rig and return to base ... 09.00 - 13.00

Lunch 13.00

8.1.1 Botany Self Assessment Exercise

SELF ASSESSMENT EXERCISE

1. In the section of an idealised flower, (Figure 1), complete the names of the individual parts and the collective names given to the four whorls labelled A. to D.

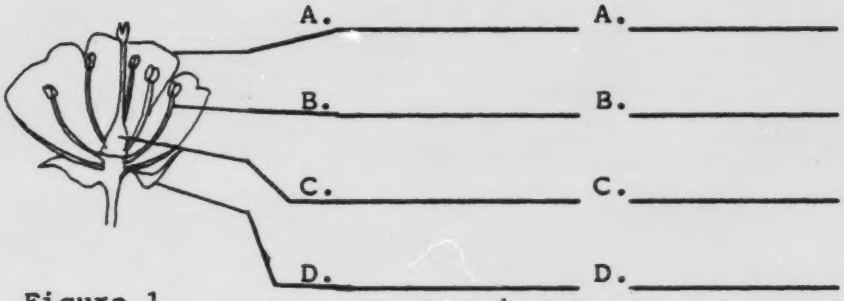


Figure 1

2. What is the function of the whorl labelled D?

_____

_____

3. What is the function of the whorl labelled A?

_____

_____

4. In Figure 2 (part C in Figure 1), name the three parts indicated

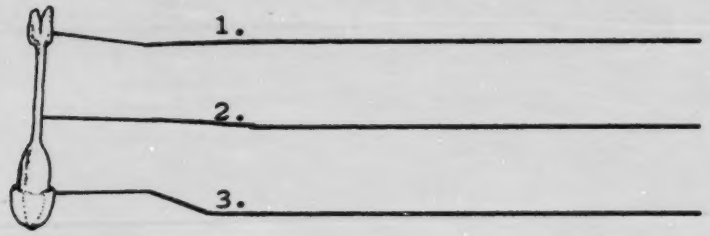


Figure 2

5. a) Write down one word which describes the position of the ovary with respect to the other floral parts in Figure 3.

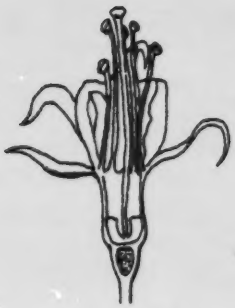
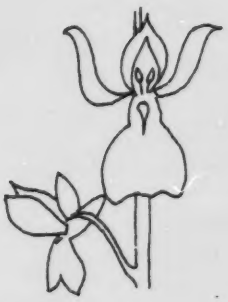


Figure 3

b) This flower is described as

6. Is the flower in Figure 4



a) Actinomorphic ✓

b) Zygomorphic

(please tick)

7. The Foxglove (Digitalis purpurea) has only one plane of symmetry. The calyx is usually five lobbed, there are five petals fused into a tube, and four stamens. The ovary is two celled, and the flower is hypogynous. From the above description, complete the floral formula of Foxglove.

K C A G

8. Caltha palustris or Marsh Marigold has an actinomorphic hypogynous flower where it is not possible to distinguish between the calyx and corolla. The combined outer whorls comprise five segments, there are at least fifty stamens and the ovary consists of five carpels. Write the floral formula.

8.2 LAW : Television Script (example)

UNIVERSITY TELEVISION
ABERDEEN

Project No: CTP79C/020-024

Rec.Dates : Monday,29th January to Tuesday, 6th February 1979.

King's College Library and Elphinstone Side Rooms.

COLOUR
(C) 1979

SOLICITOR/CLIENT RELATIONS

Producer	Rob Hunter
Director	John Scobbie
Engineering Manager	Don Terry
Lighting Supervisor	John Kilpatrick
Sound Supervisor	Terry Farquharson
Sound Assistant	T.B.A.
V.T.R. Engineer	Dave Percy
Camera 1	Graham Nicol
Camera 2	Duncan Richmond
Camera 3	Fiona Henderson
Camera Assistants	3 Law Students T.B.A.

Floor Manager ..... Rob Hunter

Assistant Floor Manager .... Law Student T.B.A.

Designer ..... Ian Cargill

Stills Photography ..... Terry Farquharson

N.B.: General Assistance - Law students will make themselves available between lectures and tutorials. They will liase through Mr Rob Hunter.

SCHEDULE - VTP79C/020-022

Monday 29th January 1979

Rendezvous T.V. Service. Derig studio and load all equipment. Check list - Don Terry.E.M.

* Graphics Dress set ..... 09.00* - 11.30

Proceed to location - King's College Library.

Two rooms adjoining as per floor plan.

Rig ..... 11.30 - 13.00

Lunch ..... 13.00 - 14.00

Rig, Set & Light.

Technical Line-up ..... 14.00 - 16.45

Secure for the night ..... 16.45 - 17.00

SCHEDULE

Tuesday 30th January 1979

Rendezvous at location.

Technical Line-up ..... 09.00 - 10.00

Rehearse/Record ..... 10.00 - 13.30

Lunch (N.B. Late lunch) .... 13.30 - 14.30

Technical Line-up ..... 14.30 - 15.00

Rehearse/Record ..... 15.00 - 16.45

Secure for the night ..... 16.45 - 17.00

CAST: Solicitor - Vivian Ogston

Employer - Roddy Begg

Secretary - T.B.A.

Extras - 1.

2.

3.

SCHEDULE

Wednesday 31st January 1979

Rendezvous at location.

Technical Line-up ..... 09.00 - 10.45

Rehearse ..... 10.45 - 12.00

Lunch (N.B. Early lunch) ... 12.00 - 13.00

Technical Line-up ..... 13.00 - 13.30

Rehearse/Record ..... 13.30 - 16.45

Secure for the night ..... 16.45 - 17.00

CAST: Solicitor - Joyce Simpson

Employer - Bill Kirton

Secretary - Law Students

Extras 1. - " " "

2. - " " "

3. - " " "

SCHEDULE

Thursday 1st February 1979

Rendezvous Location & Technical Line-up ..... 09.00 - 10.15

Rehearse/Record ..... 10.15 - 13.00

Lunch ..... 13.00 - 14.00

Check all recordings ..... 14.00 - 16.45

Secure for the night ..... 16.45 - 17.00

CAST: Solicitor - Joyce Simpson

Employer - Roddy Begg

Secretary - Law Students

Extras 1. - " " "

2. - " " "

3. - " " "

SCHEDULE

Friday 2nd February 1979

Rendezvous location.Derig ...09.00 - 13.00

(Cameras to be kept on for Monday's Production)

Lunch ..... 13.00 - 14.00

Design/Graphics - return Miss MacKenna's room to original condition ..... 14.00 - 16.45

Secure for weekend ..... 16.45 - 17.00

SCHEDULE - VTP79C/023 & 024

Sunday 4th February 1979

John Scobbie & Ian Cargill Rendezvous at Elphinstone Side Rooms.

Arrange and Dress Set 14.00

SCHEDULE

Monday 5th February 1979

Rendezvous at location 1.(King's College library)

Derig cameras and Rerig at location 2. (Elphinstone side rooms)Set and light location ..... 09.00 - 09.45

Technical line-up ..... 09.45 - 10.45

Rehearse/Record ..... 10.45 - 13.00

Lunch ..... 13.00 - 14.00

Rehearse/Record ..... 14.00 - 16.45

Secure for the night ..... 16.45 - 17.00

CAST: Solicitor - Professor M Meston

Female applicant- Sylvia Robinson

Secretary -

Extras 1. -

2. -

3. -

SCHEDULE

Tuesday 6th February 1979

Rendezvous location 2. Elphinstone Rooms.

Technical Line-up ..... 09.00 - 10.00

Rehearse/Record ..... 10.00 - 13.00

Lunch ..... 13.00 - 14.00

Rehearse/Record ..... 14.00 - 16.45

Secure for the night ..... 16.45 - 17.00

CAST: Solicitor - Jim Blaikie

Applicant - Joan Oldman

Secretary -

Extras 1. -

2. -

3. -

SCHEDULE

Wednesday 7th February 1979

Rendezvous at location.

Derig and Load Equipment for
Zoology O.B. 09.00

SOLICITOR - CLIENT RELATIONS

V.T.R. CLOCK ON CAM. 2

1. CAM. 1

   CAP. U.T.V. LOGO

   Q GRAMS

2. CAM 2.

   CAP. Solicitor-Client
   Relations

   CUT TO

3. CAM 1.

   CAP. Alternative Approaches
   Number One

   FADE GRAMS

   V.O. Contribution Tape

   CUT TO

4. CAM 2.

   CAP. Cartoon 1. V.O. - On Tape

   CUT TO Duration -

5. CAM 1.

CAP. - Cartoon 2.

CUT TO

6. CAM 2. FADE OUT AUDIO TAPE

CAP. Cartoon 3.

7. CAM 3.

B.C.U. Scottish Law Ledger

Slow Zoom out to W.S.

revealing entire office.

Q. GENERAL BUSINESS - THE SECRETARY IS BUSY TYPING AT HER DESK. THREE CLIENTS ARE SEATED. ONE IS READING A NEWSPAPER, ANOTHER IS A WOMAN READING A MAGAZINE OR KNITTING. THEY HAVE OBVIOUSLY BEEN WAITING FOR SOME TIME. THE THIRD PERSON IS PETER FORGAN. HE LOOKS RATHER IMPATIENT AND GLANCES AT HIS WATCH SEVERAL TIMES.
THE PHONE RINGS. THE SECRETARY ANSWERS.

SECRETARY:

Yes, yes ..... I'll send him through right away.

SHE PUTS DOWN THE RECEIVER AND ADDRESSES PETER FORGAN.

Mr Forgan .... sorry to keep you waiting .....

PETER FORGAN LOOKS UP RATHER MENACINGLY.

Would you like to go through now please.

SHE INDICATES TO THE DOOR AND PETER FORGAN WALKS TO CAMERA 3.

FAST FADE TO BLACK.

FLOOR MANAGER QUICKLY REPOSITION HIM TO SET 2 AND HE PROCEEDS BRISKLY

FAST FADE UP ON

8. CAM 2

M.C.S. Solicitor & Desk

PETER FORGAN ENTERS SHOT THE SOLICITOR RISES TO GREET HIM AND WE CUT AS HE SITS.

CUT TO

9. CAM 1.

O/S 2 SHOT, Solicitor &
Peter Forgan.

AN IMPROVISED INTERVIEW COMMENCES WE SHALL

CUT BETWEEN CAM 1. and CAM 2, AS DIRECTED.

FLOOR MANAGER WIND UP AFTER 10-MINS. APPROX.

FADE TO BLACK.

FADE UP

10. CAM 3.

CAP. U.T.V. END LOGO

FADE TO BLACK.

STOP TAPE.

8.2.1. Scenario for Law Programmes (example)

This scenario was used by the actors to give the character sketches of the participants.

Outline of Characters

Mrs Jean MacDonald (Claimant) Aged c.35. Maiden name Forrest. Brought up in Edinburgh. After leaving school with 4 Highers and 2 Lowers, worked in father's ironmonger's shop. Did accounts and general book-keeping, undertook some of the ordering as well as occasional serving at counter. Attended night school to obtain secretarial qualification (Anderson's College Edinburgh). Married Sandy MacDonald, then a P.E. teacher at Tynecastle Secondary School in Edinburgh. (He was a product of Jordanhill Teacher Training College, Glasgow). No children. Not long after marriage, he moved to take up promoted post as head of Outdoor Activities at Ellon Academy. Not very long after move, he was seriously injured in a

mountaineering accident in the Cairngorms, and is now a paraplegic, having lost the use of both legs. He can get about the house now, and although for some time after the accident he was very depressed he has recently taken an interest in activities for the disabled in the Ellon area. His injury forced Mrs MacDonald to go out to work. She took a job as a clerkess with O'Donnell's haulage firm, and remained after it merged with Forgan's firm to become (as it now is) O'Donnell and Forgan. She does not earn very much - around £45 per week - and finds that even with her husband's disablement pension it is difficult to make ends meet. The couple live in rented accommodation - taken originally as a temporary expedient on arrival in Ellon so that they could look around for a permanent home, but Sandy MacDonald's accident occurred before they had bought a place of their own. The landlord is

threatening to evict them because Mrs MacDonald has recently found difficulty in paying the rent on time.

O'Donnell & Forgan (Respondents)

The firm is the product of a shrewd amalgamation between two haulage firms. O'Donnell's was an old established family business, started by the present owner's grandfather. Mr Sam O'Donnell, the present owner, grew up with the business and has an intimate knowledge of the trade. He has generally made the right decisions, expanding the business both locally and nationally. Sam O'Donnell is well immersed in the North-East business world, and is generally rather conservative, but open to suggestion. He has adapted to modern business methods and realises the benefit of efficiency in management and staff relations. Before the merger with Forgan, O'Donnell had built up a special interest in long distance haulage and fish refrigerated transport, and this has since continued to expand.

His conservatism shows itself in his attitude to women, which is morally proper in sexual matters, but somewhat authoritarian. In his view women in business have a subordinate place.

O'Donnell has recently begun to leave more of the management of the business to his much younger partner John Forgan, with whom he has a good working-relationship. He has a considerable admiration for Forgan's modern and go-ahead methods, and accepts that he has grasped the opportunities presented to him. The merger has been a success and has brought benefits to both O'Donnell and Forgan.

O'Donnell respected Mrs MacDonald's competence as a clerkess in the office, but did not wish to have has in a managerial position. He resents the fact that she is contesting the decision made by the partners (he rather than Forgan had the determining voice in this matter) to appoint Peter Sloman, a distant relation of his own, to the post of office manager. He also resents any

suggestion that women should have equal pay with men, or that anyone should dictate to him how much the firm should pay its employees. Forgan is much younger than O'Donnell, about 38. He inherited his side of the business from his father-in-law, and is not a native of the north east. Since taking over after the death of his father-in-law he has expanded the local haulage business, specialising in the transport of live animals. The market garden side of his father-in-law's business he put in the hands of a manager, and concentrated himself on haulage, of which he had some personal experience as an HGV driver. He was successful before the merger, and was able to negotiate good terms with O'Donnell, whom he respects. He got on well with Mrs MacDonald as long as she kept what he considered her place. He didn't want Sloman in the office manager's job, but wanted the post readvertised; however he did not want to have a dispute with O'Donnell on the point. He is rather

angry with Mrs MacDonald for complaining about not getting the job and about getting less pay than Sloman when he was working as a clerk in the office.

Peter Sloman — Age about 26. After dropping out of university after 2 years - he had read politics and international relations - he took a job in a local ship chandlers firm, - Corbett & Hunter. Unfortunately he was dismissed for bad timekeeping. After a period of 3 months on the buroo he took a job with Santa Fe Contractors as a roustabout on an oilrig - but finding this arduous work he opted for the easier life of a wages clerk. He had also found it difficult, working 2 weeks on and two weeks off the rig, to maintain his relationship with Carol Bruce. He is paid by O'Donnell and Forgan about £4,000 with the use of a company car, while working as a clerk, and of course this is increased when he works as office manager.

Janet Buchan — A lady of about 36 with 3 young children aged 5, 7 and 10. She is O'Donnell's

secretary, and is efficient, friendly and well liked in the office. She has 110 shorthand and 60 typing. She had thought of applying for the office manager's job, but did not as she does not want more responsibility. She is content with her hours and pay and Mr O'Donnell is understanding about school holidays.

Diane Simpson

17 years of age. Goes to day release classes. Cannot work unsupervised. More interested in boyfriends and women's magazines than in work. Very suggestible. She is the office junior - types invoices and does copy-typing.

8.3 Sample Evaluation (Botany)

Nuffield Project

1st Year Botany
TV Programmes "The Morphology of Flowering Plants"

An Evaluation of Programme 1

The Morphology of Flowers

In the second week of the first term 1979, Botany 1.1.1 students were shown programme 1 on Flowers. This programme, presented by Professor Gimingham, was the first of the Nuffield tapes made by John Scobbie. The programme lasted 15 minutes and was accompanied by a Self-Assessment Test. The test comprised of questions intended to reinforce some of the points in the programme. In particular, the concept of superior/inferior ovary and floral formulae. The Self-Assessment Test was drafted by Mr Donald Patterson, the Research Officer in the Botany Department.

The programme was shown on five occasions to the students. Four times on Monday 15 October and once on Wednesday 17 October. On Monday groups of students were taken from B21/23 (Zoology) to an

adjacent room to view the tape on a single monitor. The tape was played from the TV Service on the RF distribution system. A 'U Matic' copy of the tape master was played. In all 108 students saw the programme on Monday. On Wednesday 70 students watched the programme in their laboratory G1 (Zoology). Viewing conditions were good apart from one faulty monitor on Wednesday. Each student after viewing the programme, completed the Self-Assessment Test. On average this took about ten minutes. A few students took a little longer - very few were finished in less than five minutes. On completing the Self-Assessment Test, the students completed a 14 item questionnaire designed to gauge their reactions to the programme and questions on their entry qualifications, age etc. 108 usable questionnaires were returned on Monday and 70 on Wednesday. This analysis is therefore on the result of student questionnaires.

Student Entry Characteristics

The majority of the students were males (55%); only 15 were mature (i.e. over 22 years of age) and five

came from educational systems other than the UK (Ethopia, Norway, Sweden, Indonesia and the USA). The vast majority of students had studied Biology to an advanced level, either GCE 'A' or SCE 'H' before entry (71%). Only ten students had not studied Biology although 12 had studied a form of Biology other than GCE or SCE (e.g. ONC Biology). 14 students had only studied Biology to an ordinary level.

General Response

In general the programme was thought to be both interesting and useful. The programme was probably thought to be slightly more useful than interesting.

	Very Useful	Useful	Of little use	Of no use at all
Usefulness	30.3	65.7	3.4	0.6
Interest	13.1	72.6	13.1	1.1
	Very Interesting	Interesting	Limited Interest	Of no interest at all

Table 1 : Usefulness and Interest of the Programme

Table 1 shows the slightly wider distribution of interest scores. The background characteristics of

students (age, sex, qualifications) had no effect on their degree of satisfaction. Most students considered the programme to be about the right length, although a significant number (20%) thought that it was too short. (This point is elaborated on below). With regard to the Best Feature, 12 groups of features were coded. The three that received most comment were 'The Diagrams in the Programme' (46 mentions); 'The Level of Explanation by the Presenter' (41 mentions) and 'The Use of Captions' (36 mentions). These three accounted for 69.5% of the replies. A wider range of features were identified as being 'the worst feature of the programme'; 18 categories were identified. Of these four accounted for 43.5% of the replies. Some 28% of the replies identified no worst feature. 28 students identified the density of the content to be a poor feature, 20 thought that the close up shots were not sufficiently close for clear vision, 18 disliked the introductory and closing music and 11 were not specific, but did not like the general TV production. Table 2 (overleaf) summaries the responses to these questions. If one considers those students who thought it to be Very Interesting

and Interesting, then they tend to pick the same good and bad features as the group as a whole. In other words, no matter whether you thought the programme good or bad, then the same Production and Content variables were identified. In general, male students had fewer complimentary or critical comments than female students. No other characteristic of the students effected their response to these questions.

Best Feature		Worst Feature	
Presentation	6	2	Boring Programme
Tells About Course	2	20	CU's Not Close Enough
Diagrams	46	18	Music
Examples Used	6	1	Too General
Captions	36	5	Sound Track
Production	4	28	Density of Information
Explanations	41	3	Length of Programme
Relevance to Practicals	5	7	Not Enough Examples
Floral Formulae	3	4	Section on Carpels
Better than Lectures	2	3	Production Mismatching
Directions	8	11	TV Production
The Use of Colour	1	9	Pace of Programme
		6	Introduction
		1	No Microscope Work
		2	More Directions Needed
		1	Programme Discourages Further Enquiry
		3	Presenter
		3	Replay Conditions

Table 2 : Best and Worst Features of the Programme

Many thought that the content of the programme could be presented in an alternative medium. Of the four media suggested, Demonstrations (88) was first, followed by Books (46), Lectures (23) and finally Audiotape (8). The vast majority of the students thought that the Self-Assessment Test was worthwhile (83%), and only 5 students would not like to see further programmes. In general then, the students were very pleased.

Specific Points

A number of points require clarification. First, it is quite usual in this type of investigation to find a general level of satisfaction. The questions asked (apart from the open-ended ones) did not encourage a wide variety of responses. However, the open-ended questions did suggest that despite the general satisfaction with the programme, the students were being critical of the content and the methodology. Production variables (e.g. Diagrams, Close ups) were identified on 184 occasions. That is slightly more than half of all the possible occasions (64%). Of

these 184 occasions slightly more than half (52%) were Worst Features. Content Variables (Explanations) were identified on 94 occasions, however, 71% of these were Best Features. Indicating that Production Variables were thought to be more in need of attention than Content Variables.

The level to which the students studied Biology had little influence on their response to the programme. This may be less surprising than at first sight when it is remembered that only 15 students have studied Botany as a subject and further when one considers the amount of Botany in the 'H' or 'A' level syllabus.

The most striking feature of the evaluation was that many students thought the programme to be too short (36). However if one combines this with the number of occasions that students identified the Density of Information, the Need for More Examples and the Pace of the Programme (44 replies) as Poor Features, then one can conclude that the programme (15 minutes) is too short for the amount of material presented. Indeed, students who thought the programme too short, accounted for 43% of the replies to the worst feature

'Density'.

Although the videotape and the Self-Assessment Exercise were part of a package, it has only been possible to examine the tape in detail. There are good reasons why further tapes should be shown, although some production decisions will need close examination before further programmes are made.

8.4 Notes for Students (Law)

SOLICITOR-CLIENT RELATIONS

NOTES FOR VIEWERS

R.L.C. HUNTER, W.S.

FACULTY OF LAW, UNIVERSITY OF ABERDEEN.

OBJECTIVES

By the end of this programme you should be able to exercise rational and informed judgment concerning:

a) the purposes of an interview between solicitor and client, from a solicitors' point of view

b) the probable effect of certain kinds of environment on the client

c) the probable effect of certain kinds of solicitor behaviour on the client.

SOLICITOR-CLIENT RELATIONS

A Self-Instructional Programme.

Notes for Viewers

This programme consists of a brief text, a set of videotape cassettes of fictional consultations between solicitors and clients, and a set of questions which you may put to yourself, or discuss with other viewers or your tutor, after viewing the cassettes.

The Object of the Programme

No attempt is made here to inculcate a set of "do's and don'ts" for the conduct of consultations. The personalities of individual solicitors and of the clients who seek their assistance, and the whole circumstances of each case are too varied for anything more than very general principles (some of which are indicated in the attached text) to be formulated. The object is reather to assist you to develop your sensitivity to the nuances of interaction with clients in the context of the professional interviews so that you may more quickly develop a

style which both accords with your own personality and achieves the institutional purposes of the consultation. This means that the videotapes do not point strong contrasts between right and wrong ways of proceeding. Each interview deliberately contains what the oroducers believe are, in the context at least of the relationship with the client concerned, some errors. On the other hand, no interviewer here acts throughout in ways which are in the circumstances entirely inappropriate. For similar reasons there are no answers given to the questions appended hereto.

How to use the programme

It is suggested that you start by reading the attached textual introduction. This provides an outline of the main institutional purposes of the consultation so that there is at least some framework within (or, if you like, contrary to which) you can exercise your judgment. It may be helpful then, before viewing the cassettes, to look through the suggested questions. They are not intended to be exhaustive; you are obviously free to raise other points. Then view the

cassettes. These can be taken in any order, as the very brief introductory sequence has been included in each one. In fact, it doesn't matter much if you have only one cassette at your disposal, or have time to view only one properly. Probably you will find it best to run each cassette right through on the first showing, later replaying sequences that you want to look at more closely in relation to some particular question. If you are viewing the cassettes in the context of a course along with other students (for example, the Diploma in Legal Practice required by the Law Society of Scotland) you may find it appropriate to arrange to see them as a group, and discuss the matters arising with each other or with your tutor.

The Institutional Purpose of a Consultation

A distinction may be drawn between the institutional and the personal purposes of a consultation between a solicitor and a client. The client may sometimes be concerned mainly to seek expressions of support from a person of social experience and standing in a vendetta with a neighbour; the solicitor may be

principally concerned with making a living or (as the cynic would put it) making money. But the consultation as a recognised professional institution has in a sense its own purposes, in that whatever the principal goals of the participants may be, the general pattern of behaviour is determined by certain assumptions about why consultations take place at all.

The institutional purposes of a consultation may be summarised as follows:

1. <u>To establish sound personal relations</u>

   A client naturally wishes to discover for himself (if he has not done so already) whether the solicitor is a capable, trustworthy and reasonably sympathetic person before he reveals sensitive information about his personal affairs or gives instructions for any action to be taken on his behalf. A solicitor needs to encourage the client's confidence, since otherwise information vital to the accuracy of the advice given or the action taken may not be forthcoming.

   As the professional person offering a service, it is for the solicitor to determine the course

of the interview, and conduct it in a manner likely to inspire confidence in the client. Any behaviour which betrays such feelings as impatience, dislike, condescension, or lack of interest must somehow be controlled in the interests of the furtherance of the professional relationship.

A matter which perhaps does not quite receive the attention from solicitors that it deserves is the effect of the office environment. Though no hard evidence is yet available, commonsense suggests that orderliness and reasonable concern for the physical comfort and relaxation of the client probably have a reassuring effect.

2. To discover the nature of the problem

The client seeks a solicitor because he perceives that he has a problem which he does not feel confident of being able to handle alone, a problem that is usually, though not necessarily,connected with the law. Sometimes - especially in non litigious matters such as the purchase of land, the creation of a trust, or the formation of a company, it is not difficult to discover how the

client perceives the matter, for he already has very definite ideas about it and has merely come to instruct the solicitor to put a transaction into legal form. In such a case, the solicitors task is to make sure that his client has given adequate consideration to all possible courses of action, and to raise questions where appropriate, about the measures initially proposed.

In other cases, the solicitor needs to be more active in discovering the nature of the problem, which may not at first be fully apparent. It is an obvious temptation for a lawyer merely to redefine a lay persons problem in legal terms, or to accede too readily to a client's definition of it in legal terms, contrary to the best interests of the client. If, for example, there is a dispute, it is very easy to assume litigation is appropriate.

And there are other temptations, not peculiar to lawyers as such but which they cannot escape. It is very easy to allow unreasonable social attitudes to affect one's perception of a client's problem in an unprofessional manner. There are of course some desirable attitudes - such as disapproval of

perverting the course of justice and against oppressive and dishonest conduct - but since lawyers almost control access to the machinery of justice they have continually to be on guard against allowing views not securely grounded in rational and very widely accepted morality to interfere with the professional relationship.

3. To obtain relevant information

A client may not provide information either because he does not wish to do so, perhaps because he is not confident of the solicitor's ability or because he fears an adverse reaction or because it relates to matters which he does not quite admit even to himself, or because he does not think it is relevant or important.

The first requires of the solicitor attention to the improvement of personal relations; the second requires either careful questioning or an attempt to persuade the client at least tentatively to perceive the problem in a different way. A person with legal training will in many cases perceive

problems differently from most of his or her clients.

This does not mean that the legal perception is the only one - lawyers have to be careful not to suggest that they despise the way clients see things - it is rather that the lawyer exists mainly to give legal advice and assistance and a certain way of perceiving problems is consistent with that profession. The information obtained from a client should, as soon as possible after the end of the consultation, be worked up into a draft precognition (a document called a "proof of evidence" in England and Wales). This document, the proper preparation of which is of enormous importance in the conduct of a proof, trial or other hearing at which evidence of facts is presented, is not dealt with in this programme.

(For information of this topic reference should be made to Sir David Napley's book "The Technique of Persuasion" - 2nd Ed. 1975 - at pp 15-17, or to J.M. Lees' Handbook of Pleading - 2nd Ed.1920 at paras.159-63). It should be borne in mind,

however, that even if litigation is not in prospect, some record of who the client is where he or she can be contacted, and what information he or she has provided, should be made. How this is done - by taking notes during the consultation, or by recording the consultation on a dictaphone or by reliance on memory - must depend on all the circumstances. What is important is that the method of recording should not upset the client.

Information, in the context of legal affairs, may include copies of relevant documents and the names of witnesses. If mention has been made during a consultation of such matters, care should be taken to record any relevant names and addresses, and to identify the whereabouts of necessary documents or other material evidence.

4. <u>To give advice or obtain instructions</u>

This is the primary purpose of the consultation. Almost all consultations involve the giving of at least tentative advice on some aspect of the matters

raised by the client, though in a complex case a solicitor should not be afraid - here even at the risk of reducing his standing temporarily in the eyes of the client - of saying that the matter requires further study. Unless the matter is very urgent, correct but not immediate advice is better than erroneous but immediate advice.(In a very urgent case, both are equally useless). But when advice is given it should be clear and as precise as possible. The impression of vagueness should be avoided, though in litigious matters a client should never be advised that his case is absolutely certain to succeed.

Where the solicitor considers it desirable in the client's interests that he himself should do something, it is important that he should obtain clear instructions, so that he and the client do not misunderstand each other.

QUESTIONS

1. Office environment

a) Do you notice any difference in the office environments shown?

b) Is either office environment likely to have a better

or worse effect on the professional relationship than the other?

2. The consultation

a) Are there any differences in the ways the solicitors handle the beginning of consultation) If so, are they important?

b) Do any of the solicitors say or do anything which seems to have, or might have, an adverse or positively good effect on the establishment of sound personal relationships?

c) Do any of the solicitors -

fail to define any problem in a proper manner?

do anything which helps to define any problem in an appropriate manner?

d) Do any of the solicitors -

fail to use the time available appropriately in eliciting information?

adopt an inappropriate or offensive line of questioning, or reveal attitudes which might tend to inhibit the flow of information?

e) Do any of the solicitors -

give clearly wrong advice?

fail to give any advice at all where it is

clearly desirable give vague advice?

f) Do any of the solicitors obviously intend to act without having taken clear instructions?

g) Do you think the solicitors for either or both parties should seek to negotiate a settlement of this dispute? If so, what course of action should each take?

8.5 Application to Nuffield

> Statement of the work to be carried out. This should include a brief description of the background to the project and should make clear what you propose to do, why you think it is worth doing, and how you intend to do it. The statement should be limited to pages 2-3 of the form. Exceptionally further details and accompanying papers may be included in an appendix.

Resource Based Learning in Law and Botany - A Team Approach

AIMS: The project has two inter-related aims:

(a) the production of a series of learning packages consisting of video cassettes and accompanying text material (instructions, self-assessment tests) that will be used for independent study or in group teaching.

(b) an evaluation of the 'Project Team' as a means of developing learning packages.

BACKGROUND: In recent years, a far reaching innovation in higher education has been the concept of resource based learning. Resource based learning is the name given to general

teaching/learning techniques where less emphasis is placed on formal teaching (lectures, tutorials) and more is placed on independent study. Further, it is argued that learning is occasioned by the active participation of students and that teaching therefore should be more concerned with presenting opportunities than with supplying facts or answers. It would seem that one way of achieving this may be the use of resource-based learning packages.

LEARNING PACKAGES: the Television Service in the University of Aberdeen has been active in preparing audio-visual teaching material for several years. Recently, the emphasis has changed from programmes to packages; that is, video tapes and accompanying instructions, texts etc. for direct use by students or for use in groups with tutors. Recent experience with the Faculty of Law in producing a series of programmes in Industrial Tribunals has suggested that a more systematic attempt should be made at producing integrated learning packages, devised by a four-cornered project team, subject lecturer, Education lecturer, student representative and media

specialist. It is our intention to produce two series of learning packages in Law and Botany using a project team approach. Each package will consist of one or two video-cassettes, reading material presented in a loose leaf format and a number of self assessment tests. In Law, there is an acknowledged need for instruction on the presentation of cases to Industrial Tribunals. It is felt that students studying techniques of advocacy must be actively involved in learning about the subject and that any package should create some degree of experimental learning by posing questions and asking students to work out their own solutions to problems. Experience from four programmes already made is encouraging. Students and outside bodies have shown considerable interest in the initial trials (e.g. The Law Society of Scotland, The Employment Services Agency and local schools). The situation in Botany is slightly different. The first-year class in Botany is a large one, and while a considerable proportion have done Higher Botany at school, many have had little formal instruction in Botany. Teaching at University

moves fairly fast over the elementary syllabus, but it is very important that students have a firm and accurate foundation. Nowhere is this more important than in the practical classes, where success later on depends on a thorough assimilation of basic facts, ideas and techniques. It is easy for a student to fall behind, either because he has not succeeded with a particular technique, or because he has failed to interpret his material correctly, or simply because he has missed an important practical class. This is work which cannot effectively be made up by reference to text books.

We intend to make three or four learning packages to be used in conjunction with Botany practical classes to solve some of these problems.

EVALUATION: the learning packages will be evaluated using questionnaires, observation of the students, and an examination of the production decisions. We will also attempt a financial evaluation.

The project teams will be evaluated in two case studies. In these, the lecturer in Education will carry out a participative observation study of the roles of the team members, their working relationships, the dynamics of the team and how it operated. Few attempts have been made to evaluate such team planning, (outside the Open University), and it is felt that this particular aspect of the overall project will be of wide interest.

THE GRANT: money from the Nuffield Foundation will be used to make a part payment (75%) of the salary of the Project Co-ordinator (The Television Service Production Assistant) and payment for intermittent secretarial help. Other costs of the project will be bourne by the University. It is estimated that the subject teachers will contribute the equivalent of two days per week for the duration of the project; the lecturer in Education, the equivalent of one day a week; the Director of the Television Service, one half day per week; the student members, not

more than onehalf day perweek; and the Project co-ordinator, full-time. The project will last for approximately six months. Work has already begun and we hope to appoint the Production Assistant from August 1978. An initial report of the project should be ready in February,1979.

Support for the project from outside the University has come from:
Law Departments in other Scottish universities; local schools (both Law and Botany projects); Botany Departments in several universities; and so far as the Industrial Tribunals are concerned other interested parties include the Law Society of Scotland; the Employment Services Agency; The Citizens Advice Bureau and the Workers Education Association.

ADDITIONAL INFORMATION

BOTANY DEPARTMENT PROJECT

Background: The first year class in Botany in Scottish Universities is usually a large one (230 in Aberdeen), and while a considerable proportion

have done Higher Botany at school, many have had little formal instruction in Botany. Teaching at University moves fairly fast over the elementary syllabus, but it is very important that students have a firm and accurate foundation. Nowhere is this more important than in the Practical classes, where success later on depends on a thorough assimilation of basic facts, ideas and techniques. It is easy for a student to fall behind, either because he has not succeeded with a particular technique, or because he has failed to interpret his material correctly, or simply he has missed an important practical class. This is work which cannot effectively be made up by reference to text books.

The Proposal: A series of short video tapes would be prepared to be used in two ways:-

1) During a practical class, when a demonstrator would take small groups of students (usually 6 - 12), into a side room. The tapes would place a valuable tool in the hands of the

demonstrator, when he feels that the students, or some of them have not fully achieved the objectives of the practical, or have not had time to complete it, or require to revise parts of it.

2) As resource material in the library, where the tapes would be accompanied by notes, with provision for self-assessment on the subject covered. The latter would often be in the form of unlabelled diagrams for completion by the student before checking back with the tape. This would enable students to fill out their own practical records, and would offer invaluable revision material at exam time. (At present there is very little scope for students to "revise" practical work effectively).

Subject Matter: The tapes would identify aspects of the whole year's practical syllabus, which seem to give students the greatest difficulty. These include:-

a) The structure of the various organs of flowering plants (i.e. morphology and anatomy of stems, roots, leaves, structure and functions of the

parts of the flowers).

b) The basic physiological experiments (here the student is frequently at a loss if his experiment fails to work - this is not always his fault. A demonstration of a successful experiment on tape would be most helpful).

c) Morphology and reproductive structure of fungi.

d) Basic features of the life cycles of representatives of the main groups of the plant kingdom, with emphasis on evolution and adaptation.

It is envisaged that short tapes on individual components of the above classes of topics, would be linked by tapes which provide comparisons (e.g. between stem and root structure, or between moss and fern life-cycles), which would invite further self assessment by the students. Additional tapes would provide technical instructions, e.g. on setting up the microscope, on cutting, mounting and examining sections of plant structures.

Finally, opportunity would be taken whenever possible for the tapes to serve two additional functions, which are difficult to introduce into practical classes:-

a) to illustrate the plants concerned in their natural habitats and environment, thus emphasizing the adaptive role of the structural features to be demonstrated (so often students see their specimens only in isolation on the laboratory bench).

b) to emphasize the significance of experimental results or structural features in the growth and development of the plant as a whole (again, students often have difficulty in relating particular experiments etc. to the physiology of the whole plant).

NOTE: Post-graduate students in the Botany Department who act as Demonstrators to the first-year class, already have some experience of television work and are extremely keen to be involved in the above project. Indeed, they had identified the need for resource material on the lines

indicated above before the possibility of a project of this nature had been mentioned.

LAW PROJECT

Background: Five law faculties of Scottish universities have for many years been responsible for providing through the LL.B. degree the whole of the systematic education and training of solicitors and advocates in Scotland. As well as this solicitors and advocates undergo after the completion of their university studies, a period of apprenticeship or pupillage during which they gain practical experience and receive some instruction. This system is recognised by both the universities and the profession to have defects. Recently a change in this system has been accepted by the Standing Committee on Legal Education, which contains representatives of the universities and the professional bodies. In order to provide both a more satisfactory academic foundation in the law degree and a more thorough training for professional work, it has been agreed in principle by the universities and the profession that a

Diploma in Legal Practice should be instituted by the universities as a supplement to the law degree, and that this Diploma be made a compulsory requirement for entry to the profession. Procedure, now taught in the degree, will become a compulsory course in the Diploma, and a new course in Advocacy will be established in the Diploma.

It is difficult to teach students how to conduct an interview with a client or how to examine a witness in court, without using recorded sequences or simulated interviews and witness examinations to illustrate the points being made. It is believed that the teaching of litigation procedure and advocacy may be improved by the introduction of instruction through videotape materials. Whether or not the Diploma is instituted - and at the time of writing this still hangs in the balance for financial reasons - some improvement in the effectiveness of teaching the professional techniques of interviewing and forensic pleading is required. For this reason we

have planned, a set of videotape programmes which would be used initially in the context of the law degree. The success of the project would be monitored to assess the value of this method of teaching these legal techniques.

The Proposal: A series of videotapes would be prepared to be used in two ways:

1. As part of the formal course in Advocacy, on the introduction of the Diploma, or as part of one of the courses in the law degree. The tapes would be used by the lecturer or tutor concerned to provide systematic instruction as part of the preliminaries to practical exercises by the students themselves in the preparation and presentation of a client's case to a tribunal.

2. As resource material for student use in the library, when the tapes would be accompanied by notes and self-assessment questions. Such self-instruction could extend only to the extent of the intellectual assimilation of principles and legal rules, not to the development of expertise in interviewing and pleading.

The subject matter of the tapes presently proposed would

be the preparation and presentation of a case to an industrial tribunal. This has been selected for the project because the formal rules which govern tribunal hearings are less complex, and the setting less difficult to simulate, than those of the ordinary courts. For legal reasons recording of actual interviews with clients and actual court and tribunal hearings is impossible, therefore we are using simulated hearings.

It is envisaged that, in a series of three programmes, a case of unfair dismissal would be followed through from the initial interview between solicitor and applicant to the closing statements at the hearing.

Programme 1 would contain sequences recorded at a simulated interview, interspersed with commentary and discussions on interviewing techniques.

Programme 2 would contain commentary and discussion of procedural problems encountered between the interview and the hearing; and

Programme 3 would contain sequences recorded at a simulated hearing, interspersed with discussion and commentary on each aspect of pleading technique - the opening statement, examination in chief, cross-

examination, re-examination, and closing statement.

Each programme will be accompanied by notes for tutors and a set of notes and self assessment questions for the students.

Note: The Council of the Law Society of Scotland are aware of this proposed experiment, and if this method is shown to be effective in the forensic training of solicitors (whether in the proposed Diploma or in the context of the present law degree) they will favour the preparation of similar programmes on the presentation of cases to other types of judicial and quasi-judicial bodies.

THE PROJECT TEAM

Each of the learning packages will be designed and complemented by a project team. A project team will be set up for both the Law and the Botany packages. Each team will consist of four members:

a Co-ordinator (T.V. Service Production Assistant)

the subject specialist (either Law or Botany)

a student representative (nominated by the subject specialist)

an education specialist (the applicant).

The project team co-ordinator and the education specialist

will work on both projects; the subject specialists (Professor Gimingham and Mr Hunter) and the student representatives will serve only on their own team. The Director of the Television Service, Mr Alan Grimley will assist either team when the need arises.

Each member of the team will have a specialist role to play. The co-ordinator will, as well as seeing the project through, provide his expertise in using television. The subject specialist, i.e. the lecturer, will ensure that his teaching aims are being achieved and will be responsible for the 'content' of the packages. The students' side of that of critic and representative of the consumers. In the project team, the education specialist (i.e. the applicant) will provide educational assistance with, for example, the identification and clarification of aims; learning strategies, self assessment techniques and evaluation of the packages.

As well as taking part in the Project teams as a working member, the applicant will evaluate the project team approach. It is recognised that team planning is still a new idea requiring careful scrutiny. The applicant will undertake two participative observation studies of the teams. In this he will observe and evaluate the roles of the various team members, including himself;

their working relationships, the dynamics of the teams, and so on. It is envisaged that the two project team evaluations will complement each other and will illuminate the nature of such planning.

COSTS

We are applying for £2,949 to cover the salary of a production assistant and the salary of a part-time secretary. Other costs are bourne by the university. The grant from Nuffield will cover about 40% of the development costs. (see attached Appendix).

The nature of the costs of educational developments are particularly complex (see Fielden, 1978). The range and magnitude of costs associated with any project largely depend on the nature of the assumptions behind the cost equations. Whether, for example, one includes development costs, depreciation of capital equipment charges and apportionment of overheads. For example the 'true' development costs of the packages for Botany and Law might be: Botany : £11.41/student usage; Law: £17.15/student usage. (See the Appendix for details of the cost/unit. In comparison the costs of a conventional lecture would range from £4 to £25 (see for example NDPCAL 1976).

The investment in this project must be seen to be discounted over a number of years. We estimate that both sets of packages will have a useful life of at least three years (assuming of course, for the Law packages, that there is no radical change in legislation). The costs of the packages therefore are in line with comparable costs of alternative teaching techniques.

Such packages are inevitably expensive as is all teaching when properly costed. However, against the costs can be seen a number of advantages:

a. at <u>least</u> an equivalent teaching method to conventional lectures or practicals. Many would claim packages to be inherently superior.

b. a multiplier and seeding effect within the respective departments and faculties with respect to such teaching methods. It is expected that other teachers will use a similar technique if it is successful.

c. the insight into course teams planning which in itself is transferable within the institution and externally.

The success of the packages will depend partly on

costing assumptions, but largely on whether they are of use to the learners and the teachers. Nevertheless, part of the applicant's report on the project will deal with the costs of the packages. On completion of the project, more accurate costs will be available. Such costing will be of general interest (see Harris, et al 1977).

TRANSFER

Transfer of production expertise will take place in two ways: first, by direct transfer within the institution; second, by the dissemination of reports and articles to the academic community as a whole. Within the institution, the production assistant will gain insight into such planning and this will have a multiplier effect with similar work in the future. Externally such knowledge will be disseminated in the usual way; reports, articles, etc.

OTHER PACKAGES

The likelihood of further packages is largely dependent on the success of this venture. Past experience would lead us to believe that if the subject specialists and

the students are 'satisfied' with the success of the packages, at least one or two more packages will be made. The university TV Service are confident that they will produce more such packages and are therefore releasing the production assistant to the project to develop the planning techniques.

References

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Fielden, J. (1978) The Cost of Innovation and Change in Education, PLET 15,1,16-25

Harris, D. et al (1977) Uses of and Student Reactions to Study Packs or Self Instructional Material in the Library University of Bath Educational Services Unit

NDPCAL (1976) The Cost of Conventional University Teaching, National Development Programme in Computer Assisted Learning, Technical Report 13

Robbins Report (1963) Appendix 3, Cmnd 2154, HMSO.

APPENDIX

A. Costs of Packages

A. Staff Costs

Production Assistant*	£2,865	
Secretary	414	
Academic Staff**	4,320	£7,599
B. Capital Equipment Charges	Not identifiable at this stage	
C. Consumables*** (i.e. paper, tape etc.)	£ 100	£ 100
		£7,699

A. By Project:

Botany		Law
3,658.00 £2,083.00	Subject Specialist	£1,575.00
1,432.50	Production Assistant	1,432.50
212.00	Secretary	212.00
331.20	Educational Specialist	331.20
50.00	Etc.	50.00
£4,108.70		£3,600.70

B. Student Usage of Packages

Botany 120 students/annum (360 for three years)
Law 70 " / " (210 " " ")

C. Costs/Unit

Botany: £4,108.7/for 360 student 'users' (£11.41)
Law : £3,600.7/ " 210 " " " (£17.15)

Notes * Full cost of Production Assistant

** based on NDPCAL, 1976, Robbins, 1963 and CUCP, 1972 i.e. assuming that instead of preparing learning packages they could be preparing lectures

1 Professor (45 days) at £46.30/day

1 Senior Lecturer (45 days) at £35.00/day

1 Lecturer (22.5 days) at £29.44/day

*** Estimate.